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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/530,957

03/01/2006

Eduard Schmid

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EXAMINER

ADMASU, ATNAF S

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/07/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/530,957	<b>Applicant(s)</b> SCHMID, EDUARD	
	<b>Examiner</b> ATNAF ADMASU	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/8/2005 and 5/25/2005</u> .                                  | 6) <input type="checkbox"/> Other: ____.                          |

### **DETAILED ACTION**

1. Claims 1 - 45 are pending as amended on 08 April 2005.

#### ***Information Disclosure Statement***

2. The information disclosure statements submitted on 08 April, 2005 and 25 May, 2005 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the examiner has considered the information disclosure statements.

#### ***Objection***

3. In the claims 1, 21 and 25, "A" is missing at the beginning of the statements. Independent claims should start with a letter "A" such as "A degradation-resistant...". Appropriate correction is required.

In claims 2 – 20, 22 - 24 and 25 - 45, "The" is missing at the beginning of the statements. Dependent claims should start with a term "The" such as "The polyamide according to claim 1...". Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 5 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, it is not clear what the abbreviation "HALS" stands for. For the purpose of examination against the prior art "HALS" was considered as "Hindered Amine Light Stabilizer".

Regarding claim 26, in the claim or the original disclosure [0012], it is not clear what the abbreviation "PA" stands for. For the purpose of examination against the prior art "PA" was considered as "polyamide".

Regarding claim 35, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

### ***Claim Rejections - 35 USC § 102***

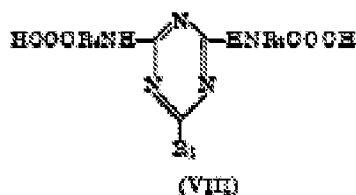
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 - 11, 13 - 18, 20 - 26, 28 - 36, 38 and 42 - 44 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 3,700,662 (Inamoto hereinafter).

Inamoto teaches heating a dry  $\epsilon$ -caprolactam together with water as a catalyst at 260°C for 10 hours. After polymerization is completed the reaction resulted in a molten polymer. When triazine derivatives such as compound VIII are admixed with the synthetic polymer the material remains stable up to about 300°C. The polymer obtained is melt spun into filament yarn (column 16, lines 18 – 30, and col. 4, lines 12 – 17). The

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relative viscosity of the polyamide is about 2.92 (col. 16, lines 28 - 29). The process provides better antistatic agents which are free from loss of operational efficiency and degradation of the products, such as lowering of spinning efficiency due to end breakage and insufficient feedability of the polymer material into the screw-type extruder (col.4, lines 29 – 39).



where the carboxylic acid group in the monomer state are present as a salt, in which the metal is selected from the group such as calcium, potassium, sodium and zinc and an organic amine selected from secondary or tertiary amines of 1 to 17 carbon atoms (col. 2, lines 62 – 66). The triazine derivatives may be used in conjunction with other additives, such as plasticizers, color-stabilizers and thermal stabilizers (col. 7, lines 51 – 54).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1, 12, 19, 21, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,074,749 (Arnauts hereinafter).

Arnauts teaches the preparation of polyamide-6 by polymerizing  $\epsilon$ -caprolactam in the presence of 2,4,6-trisaminocaproic acid-1,3,5-triazine by heating the mixture at 275°C for 2 hours. The polymer strand produced was then chopped up into granules (col. 4, lines 45 – 64). The enhanced thermal stability of the polyamide is apparent from the dynamic melt viscosity measurement in which the polyimide showed virtually no change over a period of 10 minutes (col. 6, lines 28 - 33).

Arnauts does not disclose expressly the addition of a desactivator after completed polymerization in the melt state.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to polymerize the lactam to a molten state and then add the desactivator to produce the polyamide, since it has been held that the selection of reversing the steps of a prior art process is *prima facie* obvious; the selection of any order of performing process steps is *prima facie* obvious in the absence of new or unexpected results; and any order in mixing ingredients is *prima facie* obvious. See MPEP 2144.04(IV)(C), *Ex parte Rubin*, 128 USPQ 440 (Bd App 1959), *In re Burhans*, 154 F2d 690, 69 USPQ 330 (CCPA 1946) and *In re Gibson*, 39 F2d 975, 5 USPQ 230 (CCPA 1930).

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9. Claims 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,074,749 (Arnauts hereinafter) in view of US Patent 4,783,511 (Schmid hereinafter).

The disclosure of Arnauts is adequately set forth in paragraph 3 above and is incorporated herein by reference. However, it fails to teach that after the granulation of the polyamide, the desactivator is applied to the polyamide granulate by means of adhesion-promoter before processing into the moulded article.

Schmid teaches chemical addition of a silane to polyamide granulates and in which the silane structure leads to the formation of points of linkage of the polymer chains, on the action of moisture (col. 1, lines 43 – 47).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to apply the desactivator to the polyamide by means of Schmid's adhesion-promoter in the processing of Arnauts' polyamide. The rationale to do so would have been the motivation provided by the teaching of Schmid that to do so would advantageously lengthen the chains or forms cross-linking points that improves properties such as strength, form-retention on heating and resistance to dusting (col. 1, lines 43 – 53).

10. Claims 21, 39, 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,074,749 (Arnauts hereinafter) in view of US Patent 3,220,983 (Schmidt hereinafter).

The disclosure of Arnauts is adequately set forth in paragraph 3 above and is incorporated herein by reference. However, it does not disclose expressly the catalyst is an alkali lactamate and the activator is selected from the group of acylated lactams, isocyanates and carbodiimides contained in a liquid polar aprotic salvation medium.

Schmidt teaches a process to polymerize  $\beta$ -lactams under the catalytic action of alkali metal lactamates to obtain linear polyamides. N-acyl-lactams (activators) are added to accelerate the polymerization (col. 1, lines 19 - 25). The polymerization is carried out in the presence of solvents such as dimethyl sulfoxide (col. 2, lines 6 – 10).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize Schmidt's alkali lactamate catalyst, acetylated lactam activator in aprotic solvent of dimethyl sulfoxide in the processing of Arnauts' polyamide. The rationale to do so would have been the motivation provided by the teaching of Schmidt that to do so would provide a polyamide with increased relative viscosity (col. 1, lines 25 – 26).

11. Claims 25 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,074,749 (Arnauts hereinafter) in view of US Patent 5,962,538 (Wiltzer hereinafter).

The disclosure of Arnauts is adequately set forth in paragraph 3 above and is incorporated herein by reference. However, it does not disclose expressly the method for processing the polyamide is used for recycling the polyamide or the polymer blends thereof.



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Wiltzer teaches the production of polyamide 6 using recycled lactams, the further processing of the recycled lactam takes place with oligomers dissolved in the lactam, the recycled lactam being introduced, with or without the addition of fresh lactam, in the liquid melt phase by hydrolysis at water contents of from 3 to 15% and at temperatures in the range of 220 - 280°C (col. 2, lines 52 – 60).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to utilize Wiltzer's method of producing polyamide using recycled lactam in the polyamide processing of Arnauts. The rationale to do so would have been the motivation provided by the teaching of Wiltzer that to do so would ensure reliable and continuous processing in the course of the production of polyamide using recycled lactam (col. 2, lines 22 – 24).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATNAF ADMASU whose telephone number is (571)270-5465. The examiner can normally be reached on M-F 8:00-5:30, Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ASA/

/Timothy J. Kugel/  
Primary Examiner, Art Unit 1796